Self-Defense Armament Subsystem
M240H Aviation Machine Gun

Background

- Army Aviation Technical Test Center (ATTC) conducted extensive flight testing on UH-60 and CH-47
  - 15T and 15U combat–experienced soldiers participated as testers
  - Provided excellent feedback which was used to modify production version
- Ground Testing conducted at Picatinny Arsenal, NJ
  - Led to mount development
  - Assisted by Sikorsky Aircraft to determine safe and effective integration on UH-60
- UH-60 & CH-47 Airworthiness Release
  - Permits overboard discharge of expended cartridges and links
  - Allows concurrent use of AN/PEQ-2A laser system
  - Contains appropriate warnings and cautions
  - Used in conjunction with gun/mount TMs, provides operation and maintenance information required by the crew/unit armorer

Description

- M240H Machine Gun
  - Belt-fed, gas-operated, air-cooled with fixed headspace
  - Rate of fire 650 rounds per minute (single gas port)
  - Maximum effective range 1,100 meters
  - Weighs slightly more than M60D
  - Egress kit provided (Infantry buttstock, trigger and sling) converts gun to ground configuration in less than 60 seconds
  - Improved flash suppressor, Picatinny rails, extended charging handle
  - Spare barrel issued with each gun

- M240H Mount System
  - Provides ammunition storage, feeding and collection
  - Expended cartridge cases and links may be discharged overboard (tested and specifically permitted by AWR) or collected with catch bag
  - Special heavy duty ammo can developed specifically for Aviation use

- AN/PEQ-2A Target Pointing Illumination/Aiming Laser approved by AWR for use (not issued with gun, PM Sensors and Lasers responsible agency)
  - Boresight instructions contained in Small Arms Integration Book (also provided on follow-on charts)

Features and Improvements

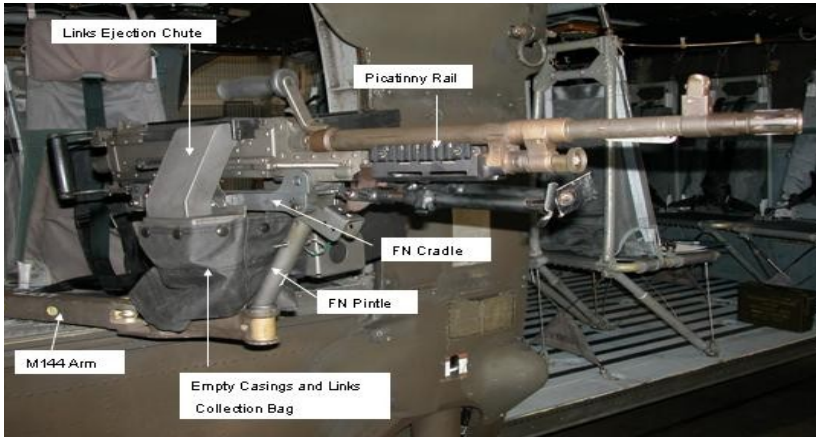
- Greatly increased reliability over M60D
- Stowable inside cabin while installed
- Medium machine gun commonality with ground units
- Egress kit allows use of M240H on ground in event of downed aircraft
- Uses existing M144 arm for UH-60, existing M24/M41 arm for CH-47
  - Requires new pintle installation
- Improved ammo can more robust, designed to prevent lid opening and ammo dumping (versus M60D)
- ESSS/ERFS/CEFS field of fire limiter installed as on the M60D mount
- Field of fire is maximized but within the safety zone
- Unit training no different than that for M60D
  - Ground weapon familiarization
  - Ground familiarization fire
  - Aerial gunnery per FM 3-04.140

Fielding Information

- TACOM Rock Island is providing New equipment Training (NET) team
  - TACOM fielders/installers
  - US Army Infantry Center NCOs for ground training
  - US Army Aviation Center NCO for aviation familiarization
  - Weapons planned to be issued from central location
- New weapon storage racks may be required (depending on current storage system)
- OIF units will initially be fielded at 70% (UH-60) and 100% (CH-47)
  - Decision based on mount production availability
  - Example: UH-60 ASLT BN 30 Aircraft, 60 guns; will receive 42 guns
  - Will need to retain remainder of M60Ds until fielding completed
  - Rationale is to ensure that all deployed UH-60/CH-47 units receive M240Hs
  - M60D turn-ins will be collected at central location
- Specific fielding information will be provided separately
- Commanders/PBOs will participate in the fielding process
- OIF and OEF will be fielded separately

Photos

UH-60



Window mount, left & right sides, M144 arm

Applicable only to lift Helicopters, UH-60 & CH-47 Expected to flow Into UH-60M and CH-47F

CH-47

Window mount, left & right sides, M24 mount

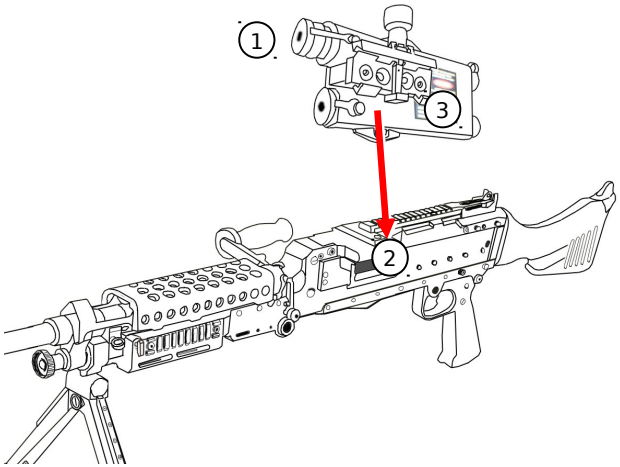
Tail (stinger) rearward facing M41 mount

Initial Fielding

First
Unit Equipped
29 Apr 2005

CFLCC - OIF

M240B—AN/PEQ-2A Mounting Instructions Utilizing Mounting Bracket/Picatinny Rail Grabber on Feed Tray Cover Rail
M240B – AN/PEQ-2A Mounting Instructions



The AN/PEQ-2A (1) is mounted on the top cover rail (2) (see arrow) by using the Mounting Bracket/ Picatinny Rail Grabber (NSN 5340-01-458-0473) (3) depicted in the diagram at left.

1.Mount the bracket assembly to the AN/PEQ-2A (1) using the thumbscrew on the AN/PEQ-2A.

2.Loosen the clamping knob until the rail grabber/mount has sufficient space to fit over the top cover rail (2). Place the grabber over the rail. Tighten the clamping knob until two clicks are heard.

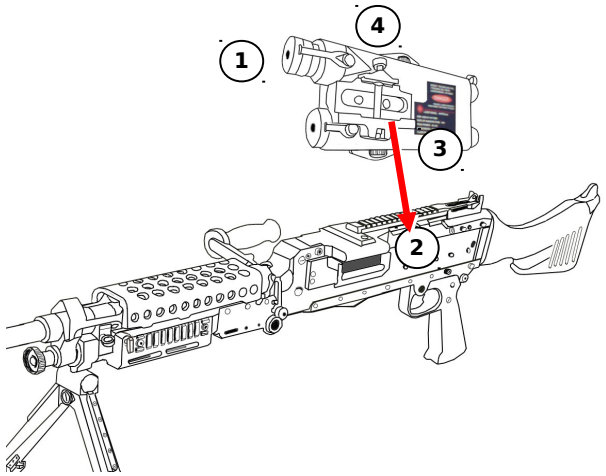
3.The AN/PEQ-2A may be placed at whichever position on the rail is most convenient for the operator. If however the AN/PEQ-2A is removed from the rail the operator must take note of the position at which the device was zeroed, and return the device to that same position in order to insure that zero is retained.

4.Install the remote switch (not shown) in a convenient location using the provided cable hangers.

Target offsets required to properly zero the device to the weapon are as follows (See Annex G for Target Preparation Instructions):

- 25m Fired Zero Offsets (Zeroed to 500m): 2.0 Squares Right; 1.5 Squares Down
- 10m Boresight Offsets (Zeroed to 500m):
  - Aiming Light: 1.7 cm Right; 3.7 cm Up
  - Flood Light: 2.3 cm Left; 3.7 cm Up

M240B—AN/PEQ-2A Mounting Instructions Utilizing “Insight” Low Profile Rail Grabber Mount on Feed Tray Cover Rail



The AN/PEQ-2A (1) is mounted on the top cover rail (2) (see arrow) by using the Insight Low Profile Rail Grabber (3) depicted in the diagram at left.

1.Attach the Insight Low Profile Rail Grabber to the AN/PEQ-2A (1) using the thumbscrew on the AN/PEQ-2A.

2.Loosen the clamping knob (4) until the rail grabber has sufficient space to fit over the rail (2). Place the grabber onto the rail. Tighten the clamping until a snug fit is achieved.

3.Install the remote switch in a convenient location using the provided cable hangers.

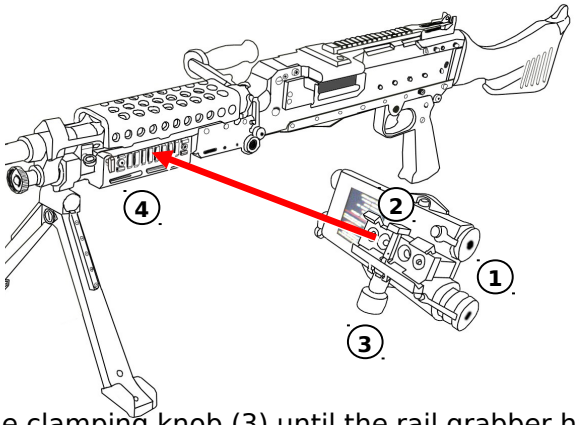
NOTE

The device may be placed on the rail, wherever is most convenient for the operator. If however the device is removed from the rail the operator must take note of the position at which the device was zeroed, and return the device to that same position in order to insure that zero is retained.

Target offsets required to properly zero the device to the weapon are as follows (See Annex G for Target Preparation Instructions):

- 25m Fired Zero Offsets (Zeroed to 500m): 1.7 Squares Left; 6.0 Squares Up
- 10m Boresight Offsets (Zeroed to 500m):
    1. Aiming Light: 1.7 cm Right; 2.2 cm Up
    2. Flood Light; 2.3 cm Left; 2.2 cm Up

M240B—AN/PEQ-2A Mounting Instructions Utilizing Mounting Bracket / Picatinny Rail Grabber on Forward Rails



The AN/PEQ-2A (1) may be mounted on M240B forward rails by using the Mounting Bracket/ Picatinny Rail Grabber (NSN 5340-01-458-0473) (2) depicted in the diagram at left.

1.Attach the Mounting Bracket/ Picatinny Rail Grabber to the AN/PEQ-2A (1) using the thumb-screw on the AN/PEQ-2A.

Loosen the clamping knob (3) until the rail grabber has sufficient space to fit over the rail (4). Place the rail grabber over the rail. Tighten the clamping knob until two clicks are heard.

1.Install the remote switch in a convenient location using the provided cable hangers.

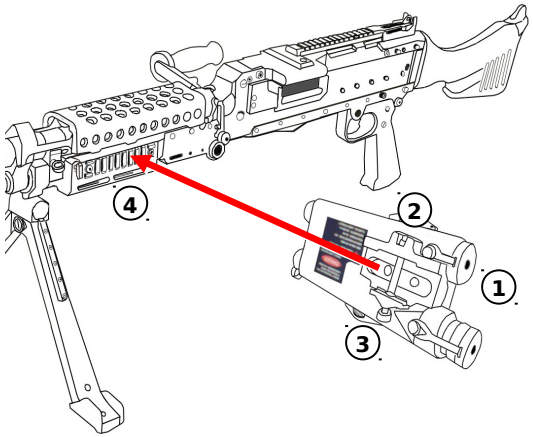
NOTE

The device may be placed on the left or right rail, wherever is most convenient for the operator. If however the device is removed from the rail the operator must take note of the position at which the device was zeroed, and return the device to that same position in order to insure that zero is retained.

Target offsets required to properly zero the device to the weapon are as follows (See Annex G for Target Preparation Instructions):

- 25m Fired Zero Offsets:
  - Left Side Rail Mounting: 7.8 Squares Right; 13.5 Squares Up
  - Right Side Rail Mounting: 7.8 Squares Left; 17.7 Squares Up
- 10m Boresight Offsets:
  1. Left Side Rail Mounting:
     - Aiming Light: 7.9 cm Left; 4.1 cm Down
     - Flood Light: 7.9 cm Left; 8.1 cm Down
  - Right Side Rail Mounting:
     - Aiming Light: 7.9 cm Right; 8.0 cm Down
     - Flood Light: 7.9 cm Right; 4.0 cm Down

M240B—AN/PEQ-2A Mounting Instructions Utilizing “Insight” Low Profile Rail Grabber on Forward Rails



The AN/PEQ-2A (1) may be mounted on either the left or right forward rails by using the Insight Low Profile Rail Grabber (2) depicted in the diagram at left.

1.Attach the Insight Low Profile Rail Grabber to the AN/PEQ-2A (1) using the thumbscrew on the AN/PEQ-2A.

Loosen the clamping knob (3) until the rail grabber has sufficient space to fit over the rail (4). Place the rail grabber over the rail. Tighten the clamping knob until the device fits snugly on the rail.

1.Install the remote switch in a convenient location using the provided cable hangers.

NOTE

The device may be placed on the left or right rail, wherever is most convenient for the operator. If however the device is removed from the rail the operator must take note of the position at which the device was zeroed, and return the device to that same position in order to insure that zero is retained.

Target offsets required to properly zero the device to the weapon are as follows (See Annex G for Target Preparation Instructions):

- 25m Fired Zero Offsets:
  - Left Side Rail Mounting: 6.2 Squares Right; 13.5 Squares Up
  - Right Side Rail Mounting: 6.1 Squares Left; 17.7 Squares Up
- 10m Boresight Offsets:
  1. Left Side Rail Mounting:
     - Aiming Light: 6.2 cm Left; 4.1 cm Down
     - Flood Light: 6.2 cm Left; 8.1 cm Down
  - Right Side Rail Mounting:
     - Aiming Light: 6.2 cm Right; 7.9 cm Down
     - Flood Light: 6.2 cm Right; 3.9 cm Down

Offset Summary

Weapon	Accessory	Mount	Range Zeroed To	25m M16A2/A4 Tgt Zero Offset Squares	10m Boresight Tgt Offset cm
M240B	AN/PEQ-2A	Mounting Bracket/Picatinny Rail Grabber mounted on Feed Tray Cover Rail	500M	2.0R 1.5D	Aiming 1.7R / 3.7U Flood 2.3L / 3.7U
M240B	AN/PEQ-2A	Insight Low Profile Rail Grabber on Feed Tray Cover Rail	500M	1.7L 6.0U	Aiming 1.7R / 2.2U Flood 2.3L / 2.2U
M240B	AN/PEQ-2A	Mounting Bracket/Picatinny Rail Grabber mounted on left forward rail.	500M	7.8R 13.5U	Aiming 7.9L / 4.1D Flood 7.9L / 8.1D
M240B	AN/PEQ-2A	Mounting Bracket/Picatinny Rail Grabber mounted on right forward rail.	500M	7.8L 17.7U	Aiming 7.9R / 8.0D Flood 7.9R / 4.0D
M240B	AN/PEQ-2A	Insight Low Profile Rail Grabber on left forward rail	500M	6.2R 13.5U	Aiming 6.2L / 4.1D Flood 6.2L / 8.1D
M240B	AN/PEQ-2A	Insight Low Profile Rail Grabber on right forward rail	500M	6.1L 17.7U	Aiming 6.2R / 7.9D Flood 6.2R / 3.9D

Annex G
Offset Target Preparation

To create 25 Meter Live Fire Zeroing Targets:

1. Obtain an **M16A2/M16A4** 25 Meter Zeroing Target. **(DO NOT USE M4 CARBINE SIDE)**
2. Locate the **25m M16A2/A4 Tgt Zero Offset** data for your weapon configuration in the current SMALL ARMS INTEGRATION BOOK.
3. All offsets are represented in BLOCKS from the CENTER of the target.
(Each offset is two numbers. The first number represents the number of blocks **L**eft or **R**ight of center and the second number represents the number of blocks **U**p or **D**own from the center.)
4. Using the offset numbers draw a point on the Zeroing Target.
5. Draw a box, four (4) blocks by four (4) blocks centered AROUND the point in step 4.
(See sample on next page)

To use 25 Meter Live Fire Zeroing Targets:

1. Place target 25 Meters from the weapon.
2. Aim weapon at center of target.
3. Fire three (3) rounds at target.
4. Determine where rounds hit the target.
5. If all three (3) rounds are inside the four (4) by four (4) box then the gun is correctly zeroed.

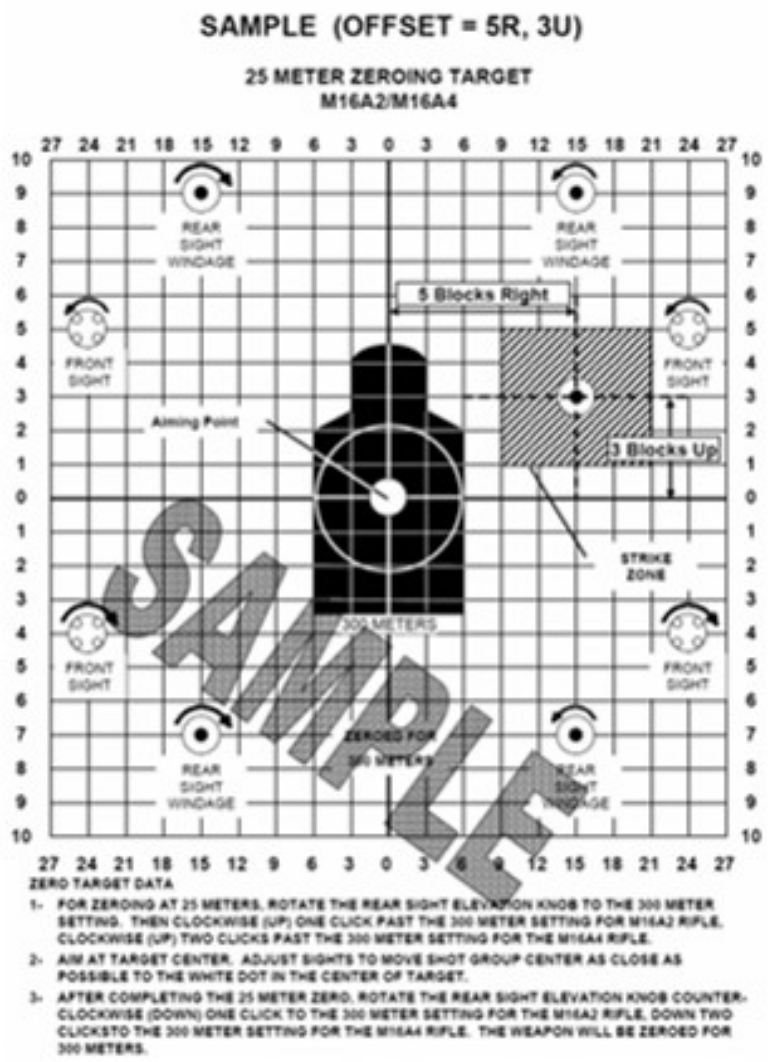
If the shot group is ABOVE the box then adjust the sight UP.
If the shot group is BELOW the box then adjust the sight DOWN.

If the shot group is LEFT of the box then adjust the sight LEFT.

If the shot group is RIGHT of the box then adjust the sight RIGHT.

6. Continue to fire three (3) round groups at the target until all three (3) rounds are inside the four (4) by four (4) box.

Sample 25 Meter Live Fire Zeroing Target


SAMPLE (OFFSET = 5R, 3U)
25 METER ZEROING TARGET
M16A2/M16A4
REAR SIGHT WINDAGE
FRONT SIGHT
5 Blocks Right
3 Blocks Up
Aiming Point
STRIKE ZONE
300 METERS
ZEROED FOR 300 METERS
SAMPLE
ZERO TARGET DATA
1- FOR ZEROING AT 25 METERS, ROTATE THE REAR SIGHT ELEVATION KNOB TO THE 300 METER SETTING. THEN CLOCKWISE (UP) ONE CLICK PAST THE 300 METER SETTING FOR M16A2 RIFLE. CLOCKWISE (UP) TWO CLICKS PAST THE 300 METER SETTING FOR THE M16A4 RIFLE.
2- AIM AT TARGET CENTER. ADJUST SIGHTS TO MOVE SHOT GROUP CENTER AS CLOSE AS POSSIBLE TO THE WHITE DOT IN THE CENTER OF TARGET.
3- AFTER COMPLETING THE 25 METER ZERO, ROTATE THE REAR SIGHT ELEVATION KNOB COUNTER-CLOCKWISE (DOWN) ONE CLICK TO THE 300 METER SETTING FOR THE M16A2 RIFLE. DOWN TWO CLICKSTO THE 300 METER SETTING FOR THE M16A4 RIFLE. THE WEAPON WILL BE ZEROED FOR 300 METERS.

Annex G
Offset Target Preparation (CONT)

<u>To create 10 Meter Laser Bore Sight Targets:</u>

1. Targets are created using a **10m Bore Sight Target for 300m Zero**. Each block on the 10m Bore Sight Target is 1cm x 1cm. Blanks can be downloaded from: http://www.adtdl.army.mil/cgi-bin/atdl.dll/st/saib/saib.htm

2. Locate the **10m Boresight Tgt Offset** data for your weapon configuration in the current SMALL ARMS INTEGRATION BOOK.

3. All offsets are represented in BLOCKS, from the LASER BORE LIGHT (0, 0) point on the target. (Each offset is two numbers. The first number is the number of blocks **L**eft or **R**ight of LASER BORE LIGHT point and the second number is the number of blocks **U**p or **D**own from the LASER BORE LIGHT point.)

4. Place a small circle on the target for the LASER BORE LIGHT. Place the circle so the aim point will also fit on the target. Label this point LBL.

5. Starting at the LBL point use the offset numbers to place another small circle on the target. Label this point Aim Point or AP. (See sample on next page)

<u>To use 10 Meter Laser Bore Sight Targets:</u>

1. Secure weapon.

2. Place target ten (10) Meters from the weapon.

3. Insert Laser Bore Light into the barrel. (See Annex F for more detail.)

4. Spin balance the Laser Bore Light. (See Annex F for more detail.)

5. Line up the Laser Bore Light with the LBL (0, 0) circle on the target.

6. Adjust the aiming device so it is located at the Aim Point on the target.

Sample 10m Laser Bore Sight Target